FOREST HEALTH UPDATE

Dr. Carrie Fearer

Assistant Professor of Forest Health

QUARANTINED: SPOTTED LANTERNFLY

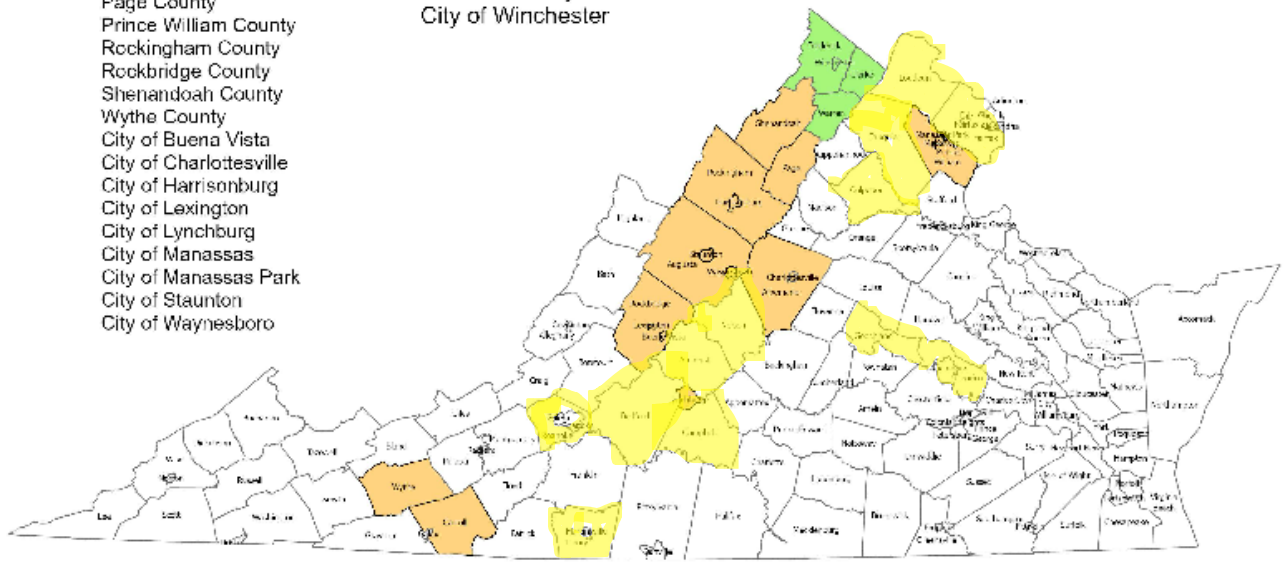
Spotted Lanternfly Quarantine

2022 Additions

Albemarle County
Augusta County
Carroll County
Page County
Prince William County
Rockingham County
Rockbridge County
Shenandoah County
Wythe County
City of Buena Vista
City of Charlottesville
City of Harrisonburg
City of Lexington
City of Lynchburg
City of Manassas
City of Manassas Park
City of Staunton
City of Waynesboro

Original Quarantine

Clarke County
Frederick County
Warren County
City of Winchester



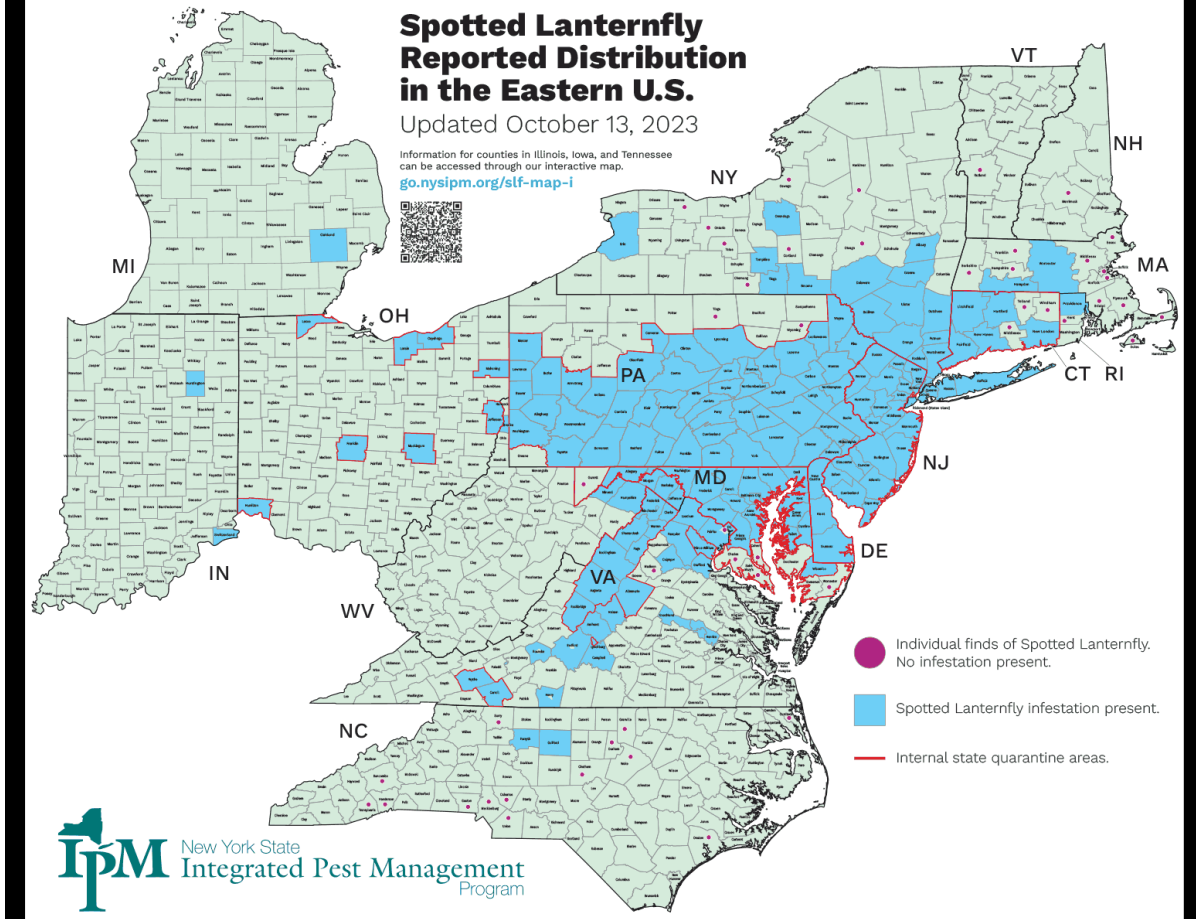
Virginia Department of Agriculture and Consumer Services
Office of Plant Industry Services

July 2022

Spotted Lanternfly Reported Distribution in the Eastern U.S.

Updated October 13, 2023

Information for counties in Illinois, Iowa, and Tennessee can be accessed through our interactive map.
go.nysipm.org/slf-map-i



Individual finds of Spotted Lanternfly. No infestation present.

Spotted Lanternfly infestation present.

Internal state quarantine areas.

New York State Integrated Pest Management Program

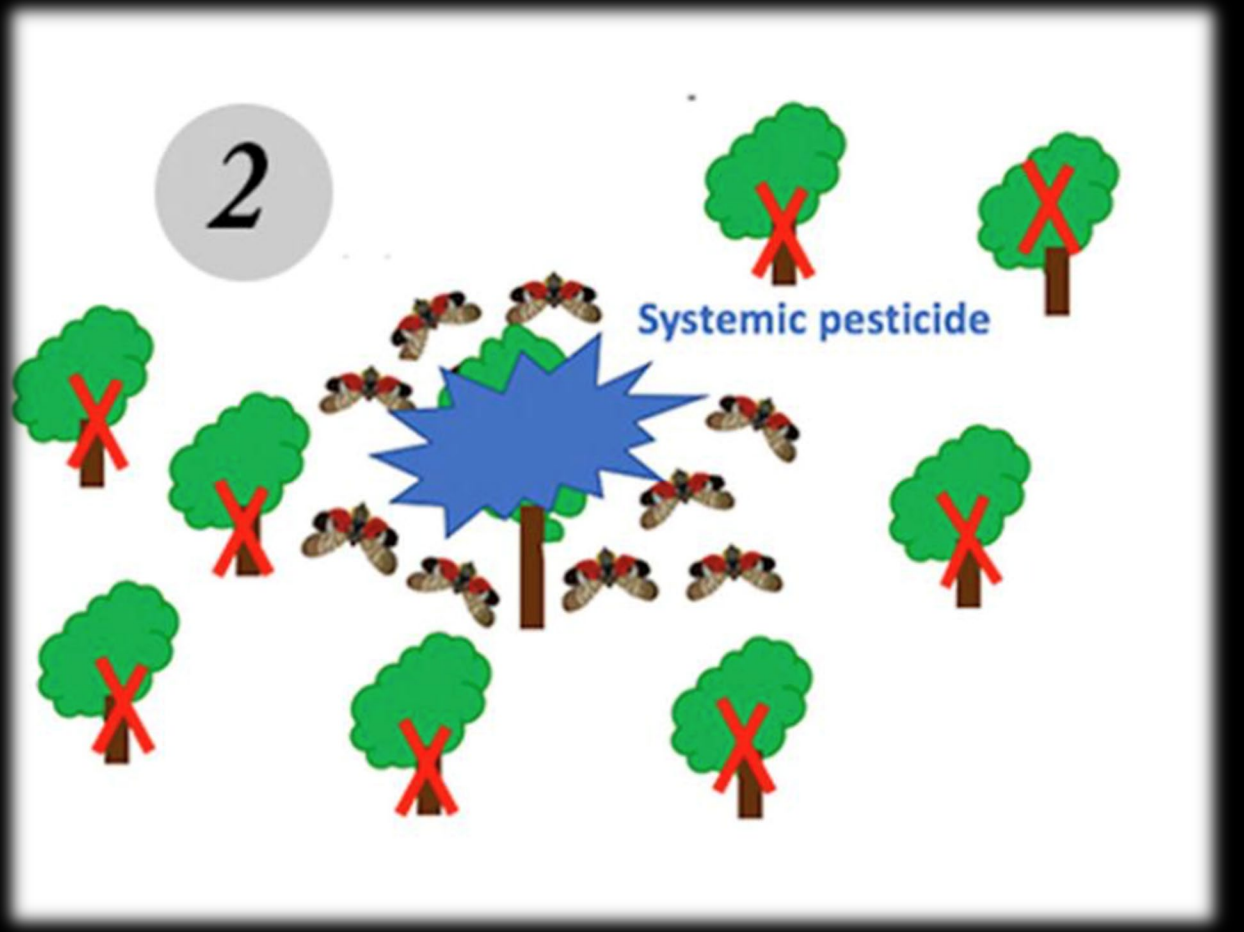
M A N A G E M E N T

May – November
Kill nymphs,
adults

September - May
Remove Egg
masses

Always
Check equipment,
vehicles, etc.

TREE-OF-HEAVEN CONTROL



TREE-OF-HEAVEN CONTROL

Biological Control 148 (2020) 104298

Contents lists available at ScienceDirect

Biological Control

journal homepage: www.elsevier.com/locate/ybcon

Field-inoculated *Ailanthus altissima* stands reveal the biological control potential of *Verticillium nonalfalfae* in the mid-Atlantic region of the United States

Rachel K. Brooks[a], Kristen L. Wickert[b], Anton Baudoin[a], Matt T. Kasson[b], Scott Salom[c,*]

[a] Virginia Tech, School of Plant and Environmental Sciences, Blacksburg, VA, USA
[b] West Virginia University, Division of Plant and Soil Sciences, Morgantown, WV, USA
[c] Virginia Tech, Department of Entomology, Blacksburg, VA, USA

Dr. Scott Salom

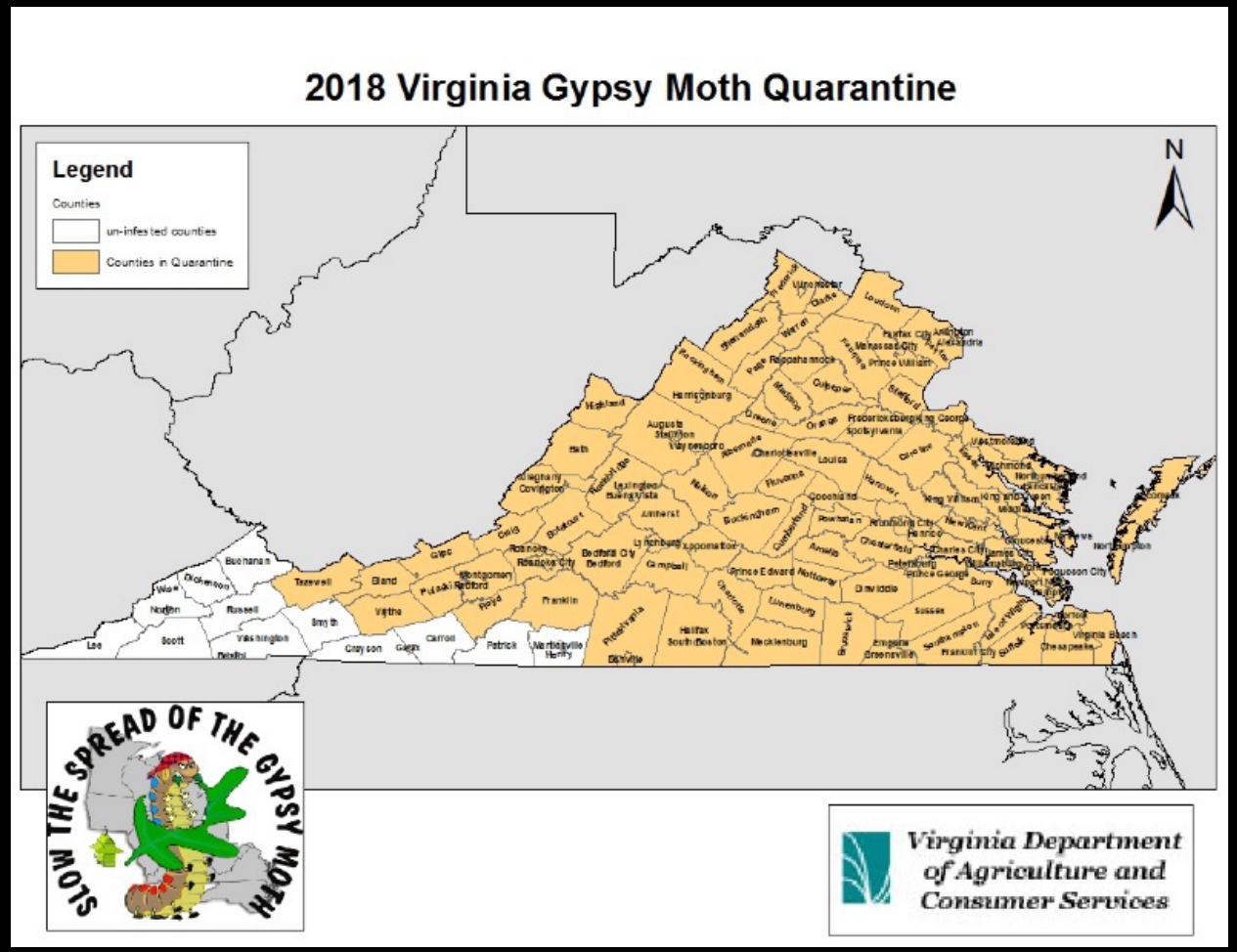
Tim Shively

Harrison Miles

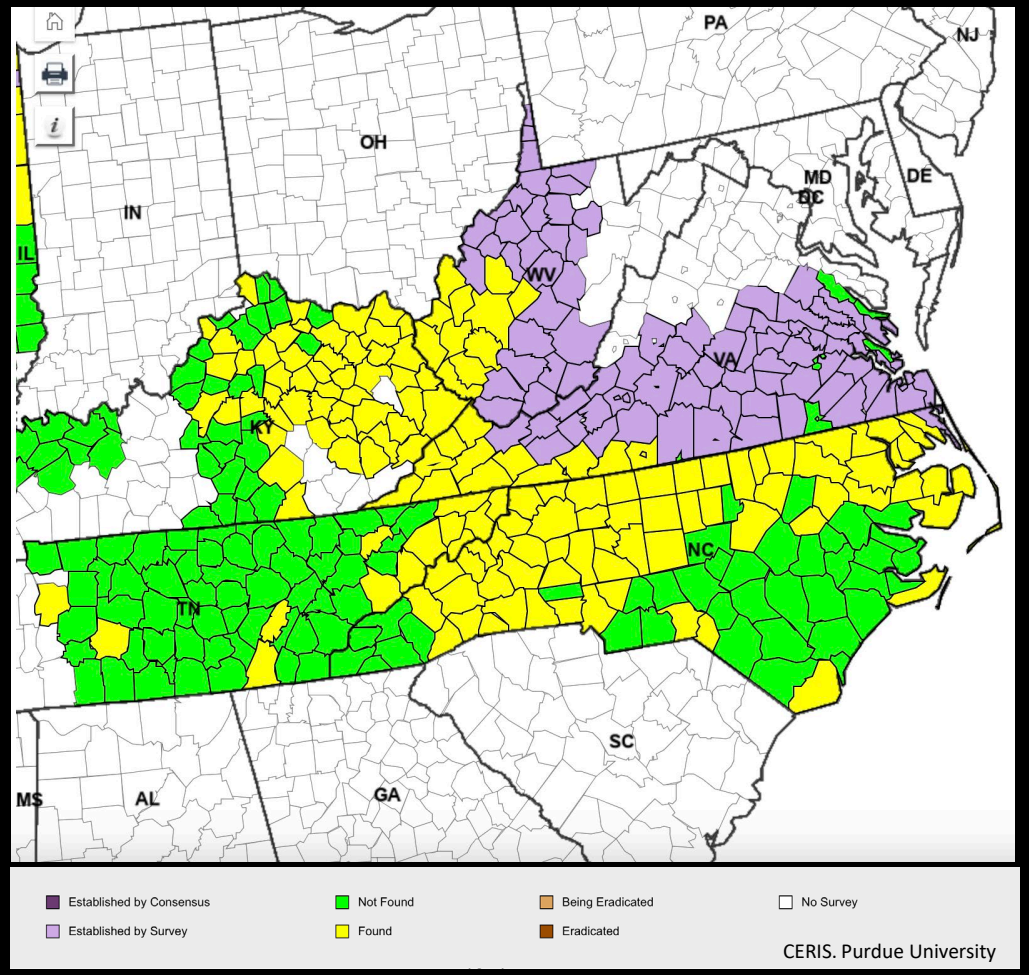
QUARANTINED: SPONGY MOTH


UGA0886004


5550924

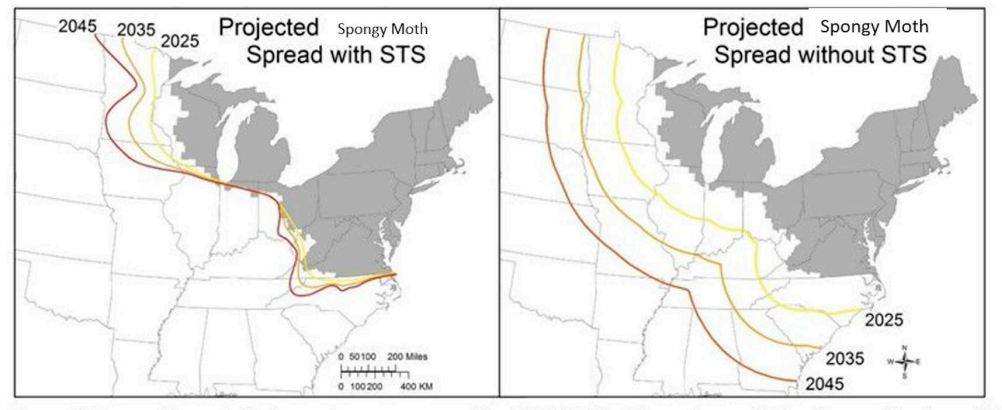


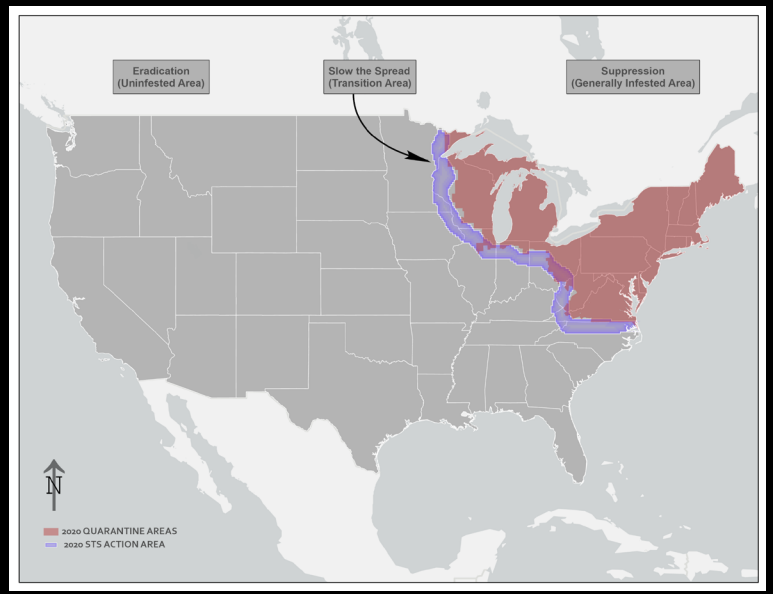
2022 Annual Survey



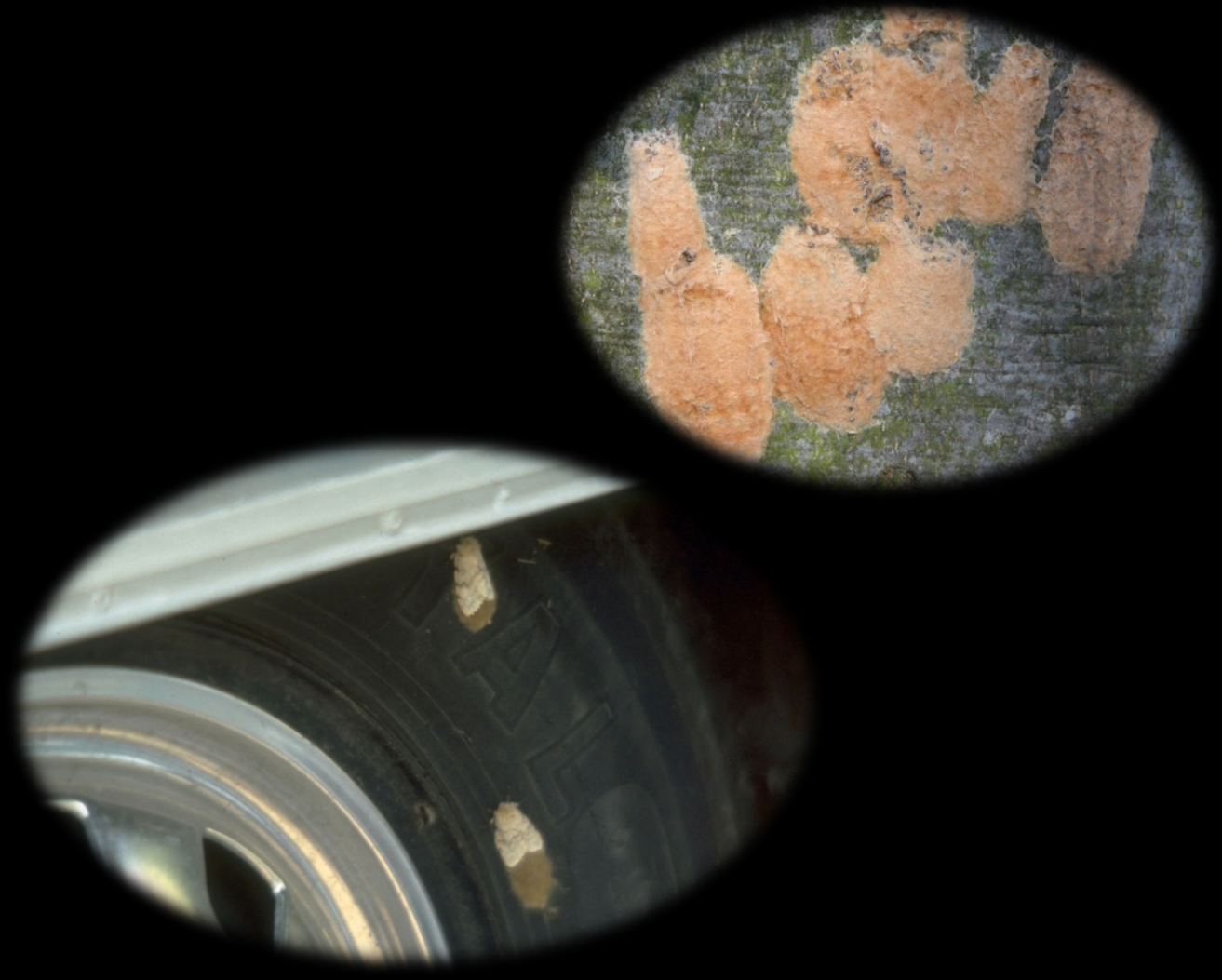
MANAGEMENT

Slow the spread program

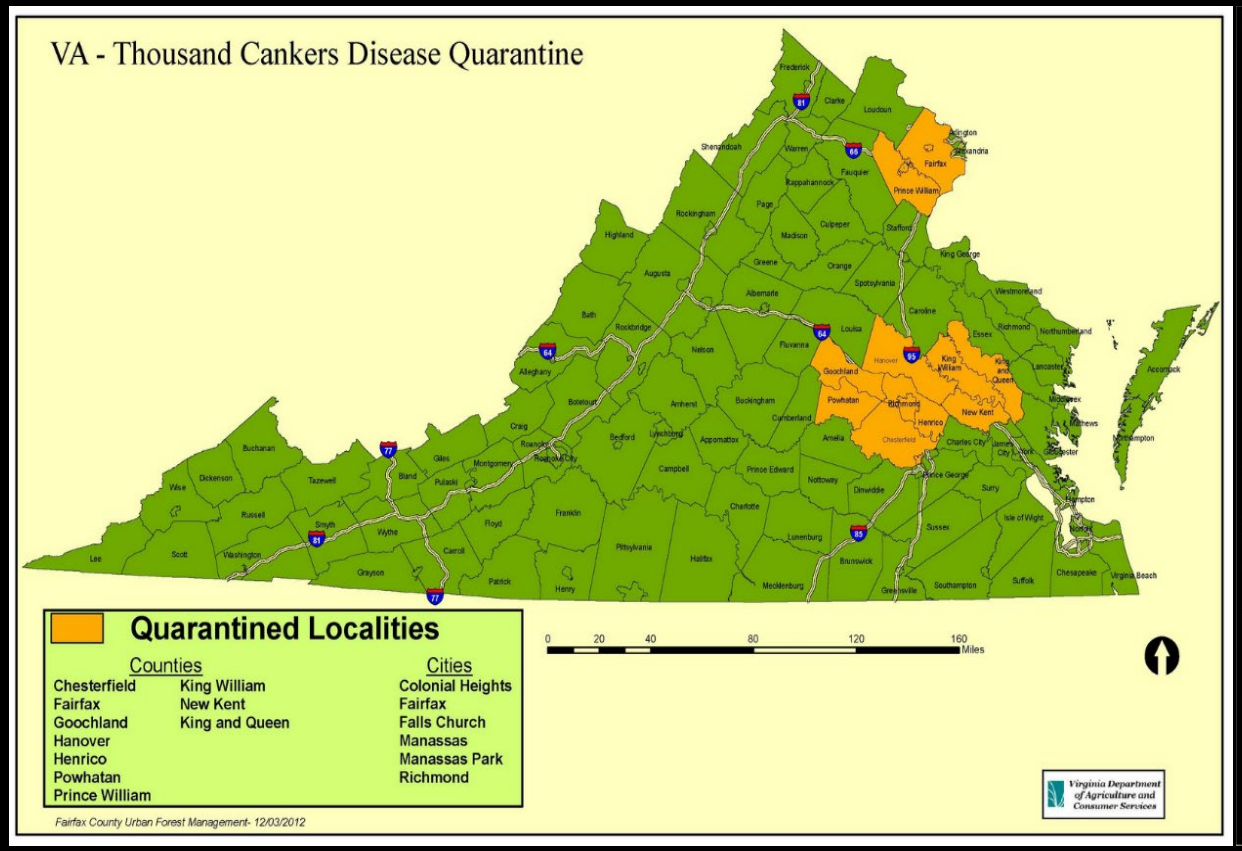


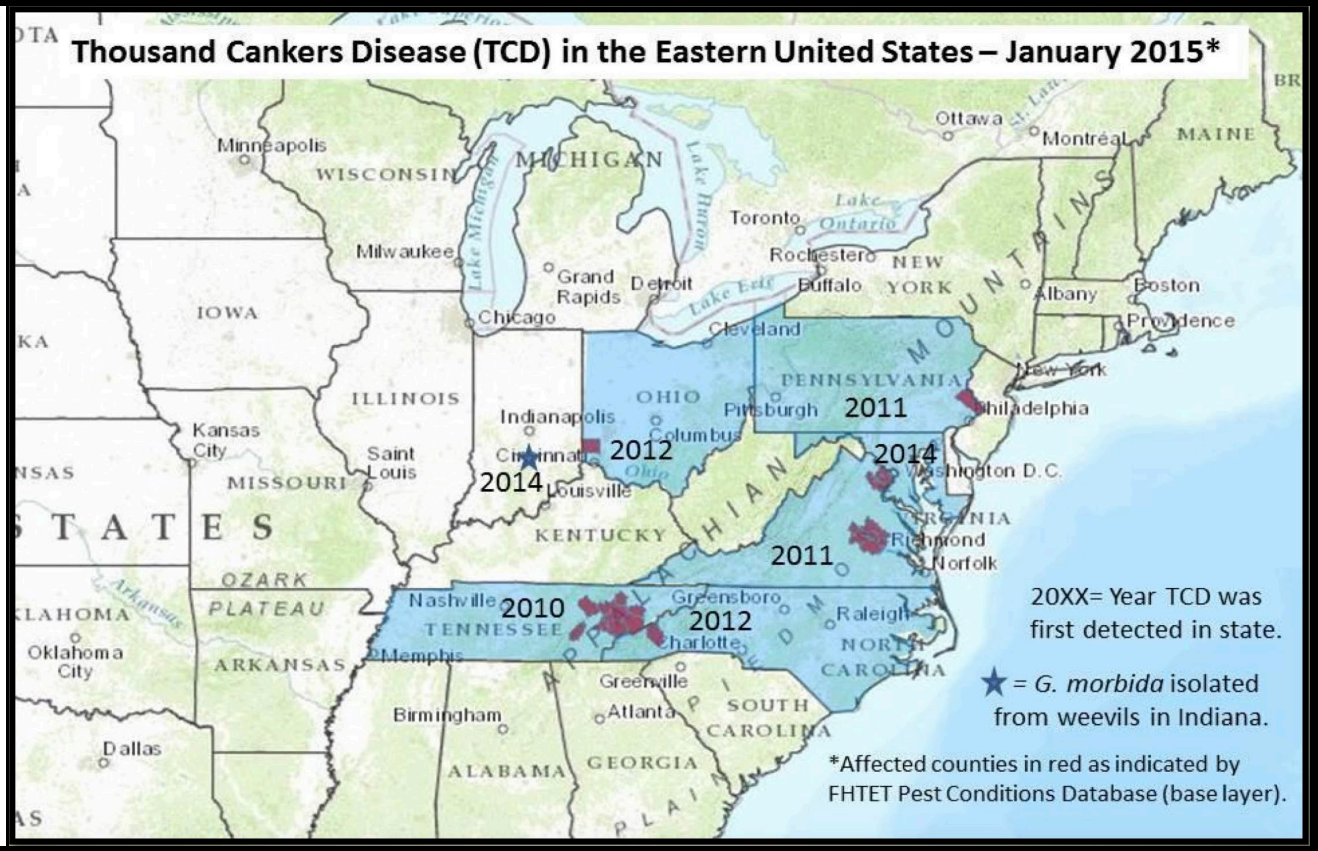


Egg mass removals



QUARANTINED: THOUSAND CANKERS DISEASE

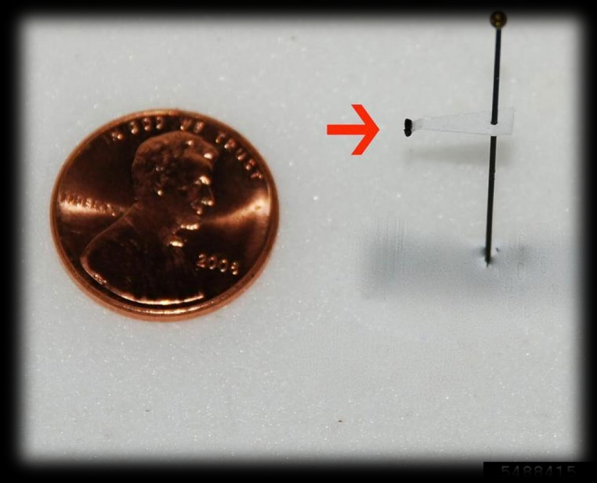

VA - Thousand Cankers Disease Quarantine
Quarantined Localities
Counties
Chesterfield
Fairfax
Goochland
Hanover
Henrico
Powhatan
Prince William
King William
New Kent
King and Queen
Cities
Colonial Heights
Fairfax
Falls Church
Manassas
Manassas Park
Richmond
0 20 40 80 120 160 Miles
Virginia Department of Agriculture and Consumer Services
Fairfax County Urban Forest Management- 12/03/2012


Thousand Cankers Disease (TCD) in the Eastern United States – January 2015*
Minneapolis
WISCONSIN
MICHIGAN
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
Ottawa
Montreal
MAINE
Toronto
Milwaukee
Grand Rapids
Detroit
Rochester
Buffalo
NEW YORK
Albany
Boston
Providence
IOWA
Chicago
Cleveland
APPALACHIAN MOUNTAINS
PENNSYLVANIA
New York
ILLINOIS
OHIO
Pittsburgh
2011
Philadelphia
Indianapolis
Columbus
Kansas City
Saint Louis
Cincinnati
2012
2014
Ohio
MISSOURI
Louisville
2014
Washington D.C.
KENTUCKY
VIRGINIA
Richmond
Norfolk
2011
OZARK PLATEAU
Nashville
2010
Greensboro
2012
Raleigh
TENNESSEE
Charlotte
NORTH CAROLINA
Memphis
ARKANSAS
Oklahoma City
Greenville
Atlanta
SOUTH CAROLINA
Birmingham
Dallas
ALABAMA
GEORGIA
ATLANTIC COASTAL PLAIN
20XX= Year TCD was first detected in state.
★ = G. morbida isolated from weevils in Indiana.
*Affected counties in red as indicated by FHTET Pest Conditions Database (base layer).

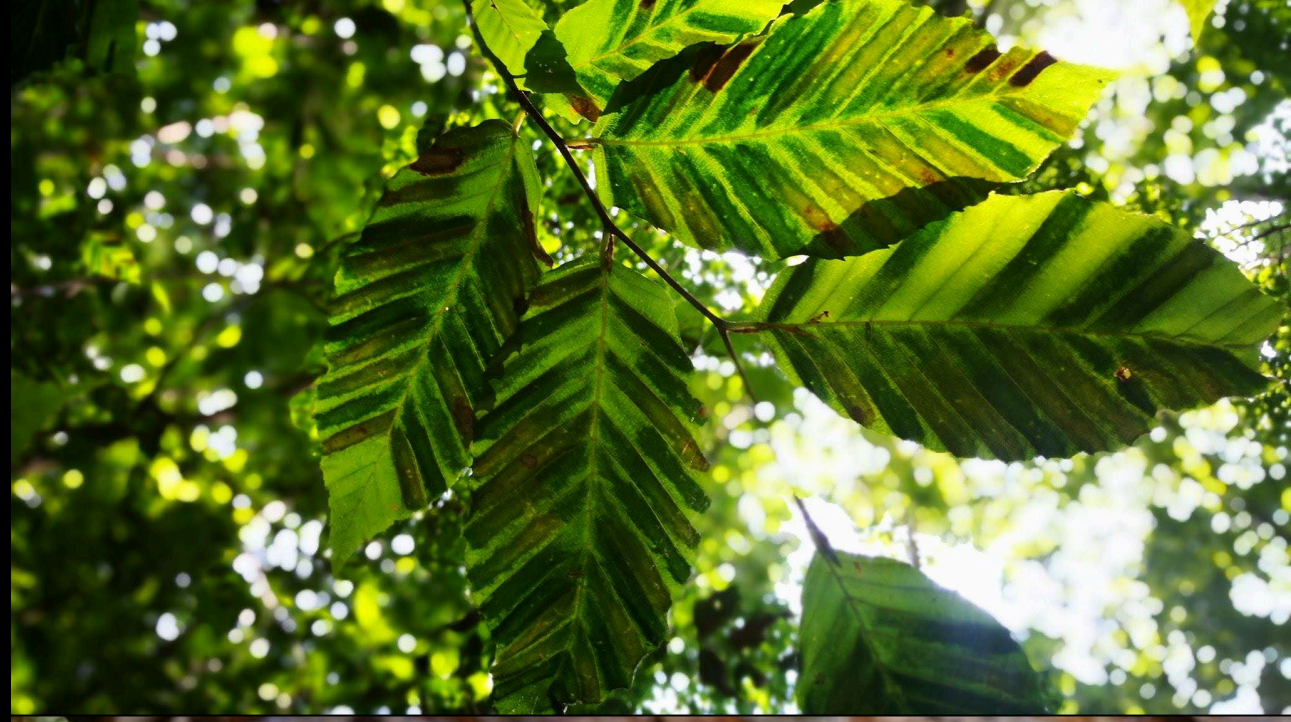
MANAGEMENT

Know the symptoms

Know the walnut twig beetle

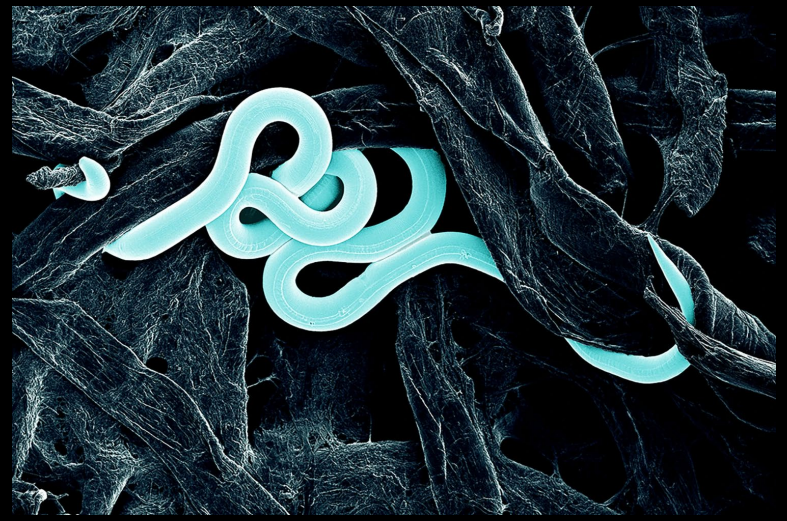


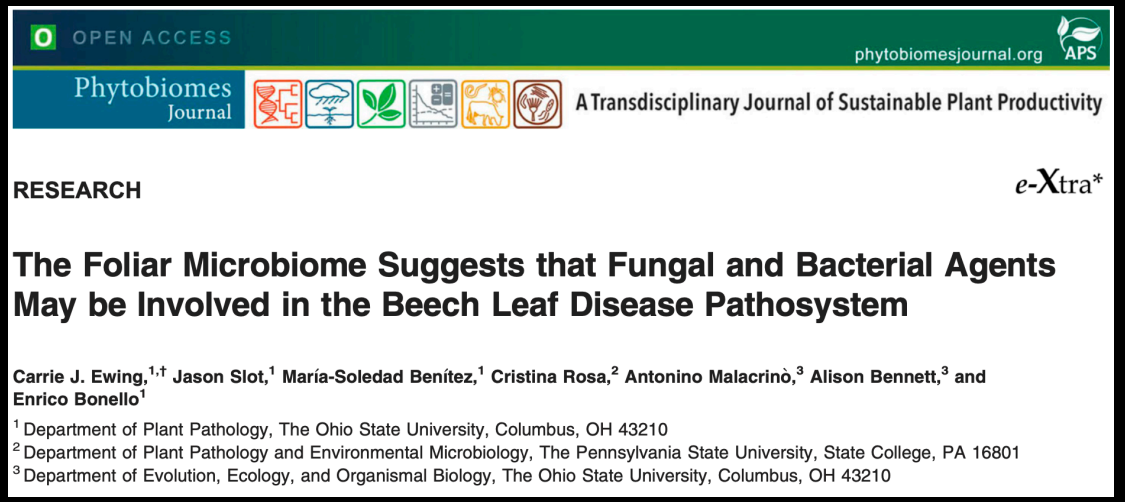
BEECH LEAF DISEASE



INFORMATION

- Symptoms associated with the non-native nematode, *Litylenchus crenatae mccannii*
- Bacteria or fungi may also be involved
- Nematodes infest buds and migrate into the leaf throughout the growing season
- Dispersal
  - **Within tree: Rain splash**
  - **Throughout forest: Wind? Birds? Humans (boots)?**





OPEN ACCESS phytobiomesjournal.org APS

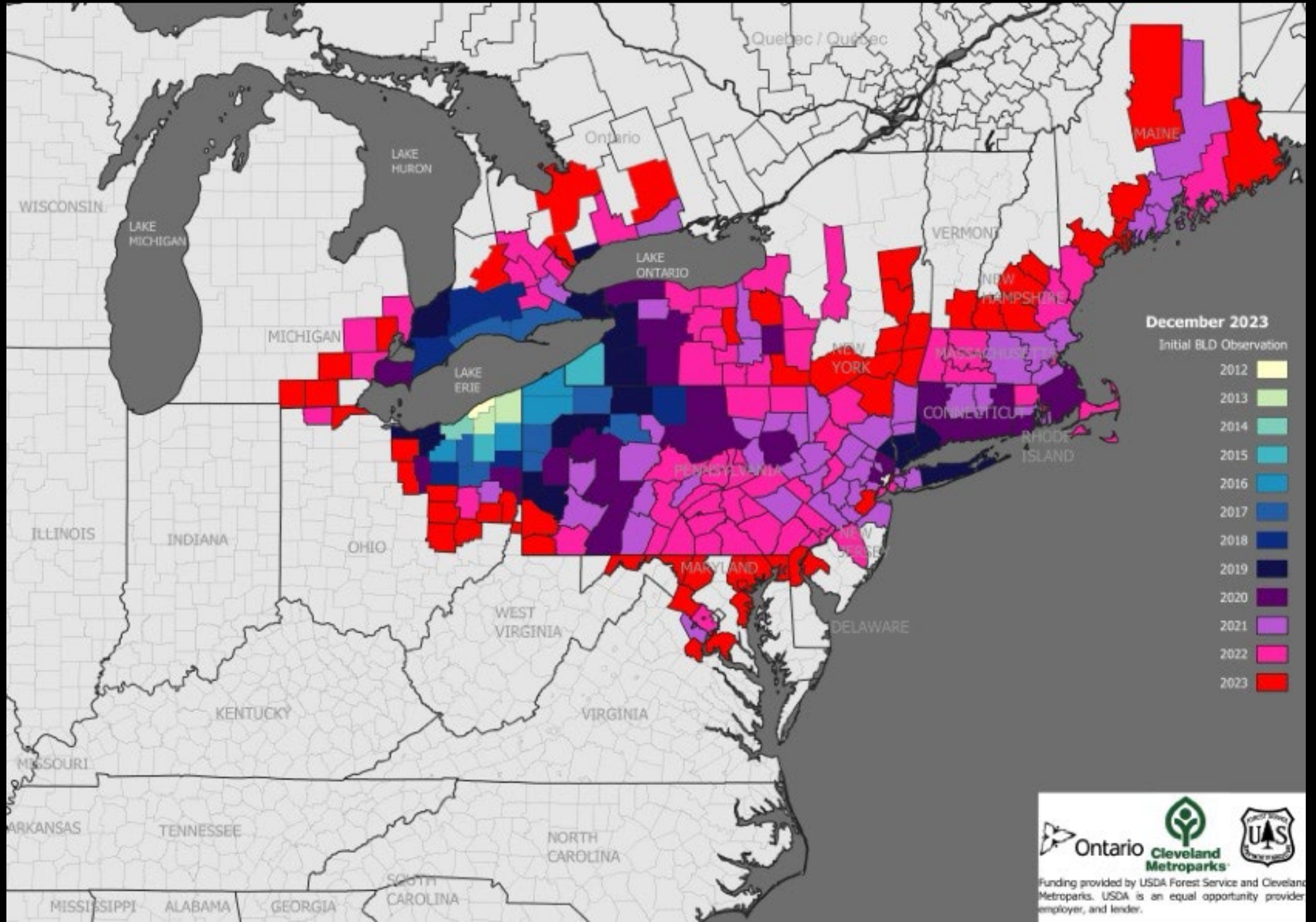
Phytobiomes Journal — A Transdisciplinary Journal of Sustainable Plant Productivity

RESEARCH e-Xtra*

The Foliar Microbiome Suggests that Fungal and Bacterial Agents May be Involved in the Beech Leaf Disease Pathosystem

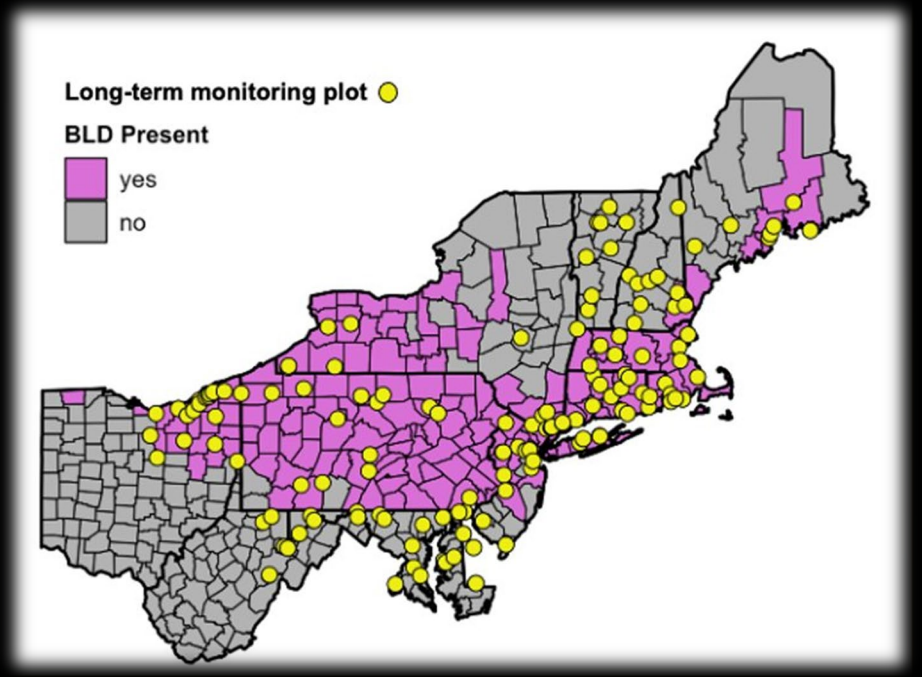
Carrie J. Ewing,[1,†] Jason Slot,[1] María-Soledad Benítez,[1] Cristina Rosa,[2] Antonino Malacrinò,[3] Alison Bennett,[3] and Enrico Bonello[1]

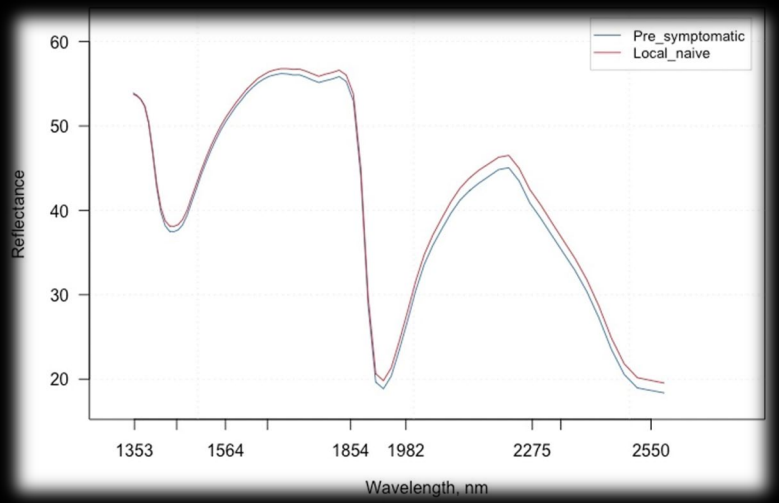
[1] Department of Plant Pathology, The Ohio State University, Columbus, OH 43210
[2] Department of Plant Pathology and Environmental Microbiology, The Pennsylvania State University, State College, PA 16801
[3] Department of Evolution, Ecology, and Organismal Biology, The Ohio State University, Columbus, OH 43210


Quebec / Québec
Ontario
LAKE HURON
LAKE MICHIGAN
LAKE ONTARIO
LAKE ERIE
WISCONSIN
MICHIGAN
MAINE
VERMONT
NEW HAMPSHIRE
NEW YORK
MASSACHUSETTS
CONNECTICUT
RHODE ISLAND
PENNSYLVANIA
NEW JERSEY
MARYLAND
DELAWARE
ILLINOIS
INDIANA
OHIO
WEST VIRGINIA
VIRGINIA
KENTUCKY
MISSOURI
ARKANSAS
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
MISSISSIPPI
ALABAMA
GEORGIA
December 2023
Initial BLD Observation
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Ontario
Cleveland Metroparks
Funding provided by USDA Forest Service and Cleveland Metroparks. USDA is an equal opportunity provider employer, and lender.

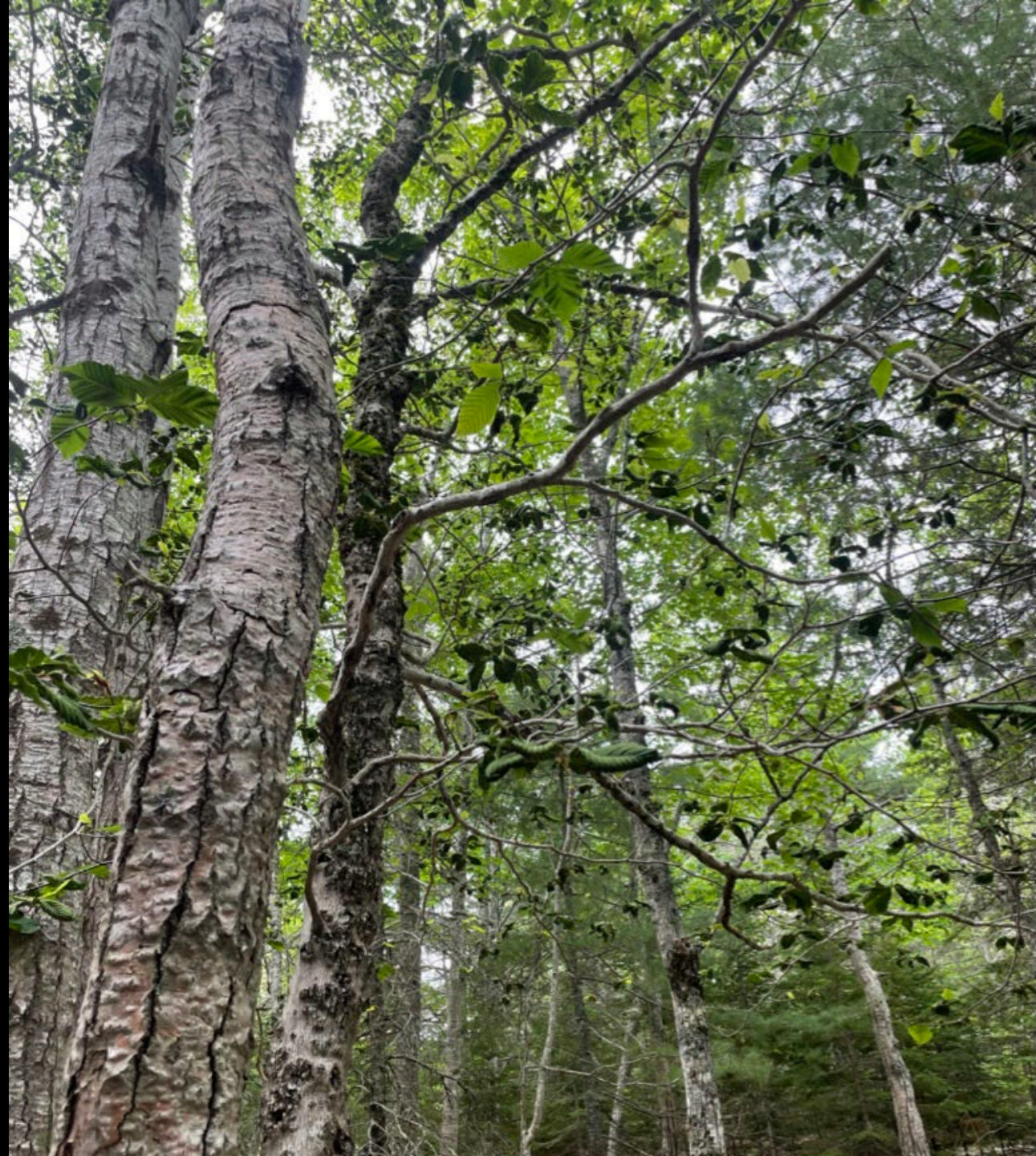
M A N A G E M E N T

- No current management options
- Davey Tree & Cleveland Metroparks testing PolyPhosphite 30 soil application
  - **Some promising results**
- Bartlett is testing Emamectin benzoate treatments
- Long-term monitoring plots
- Early disease detection





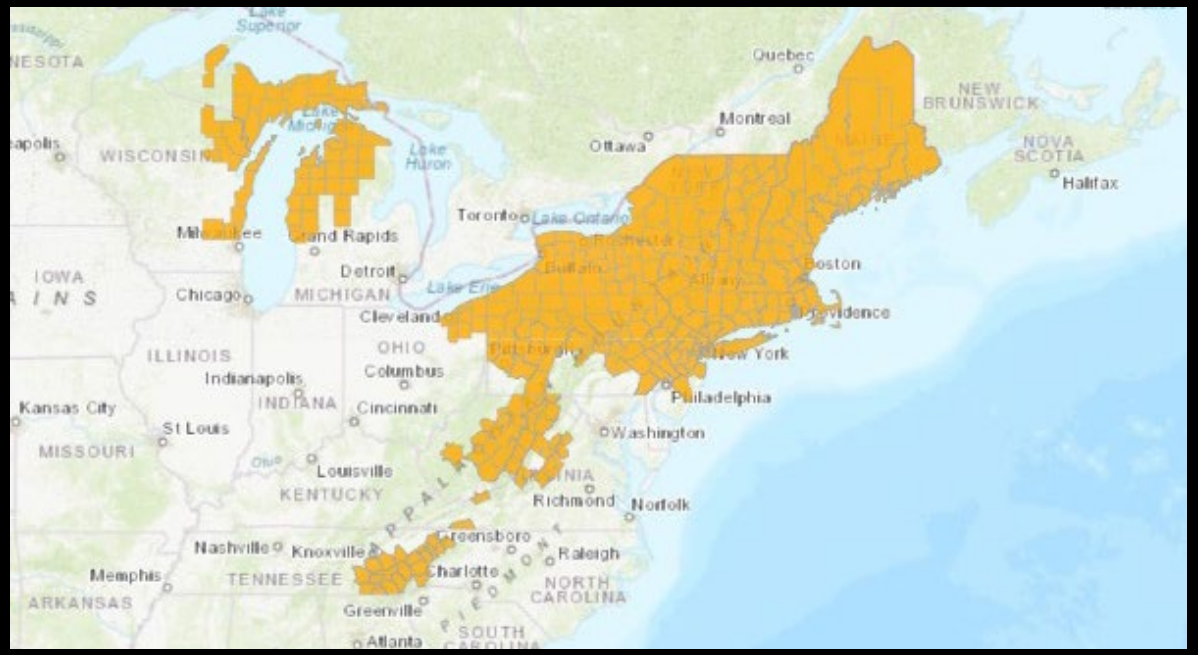
BEECH BARK DISEASE

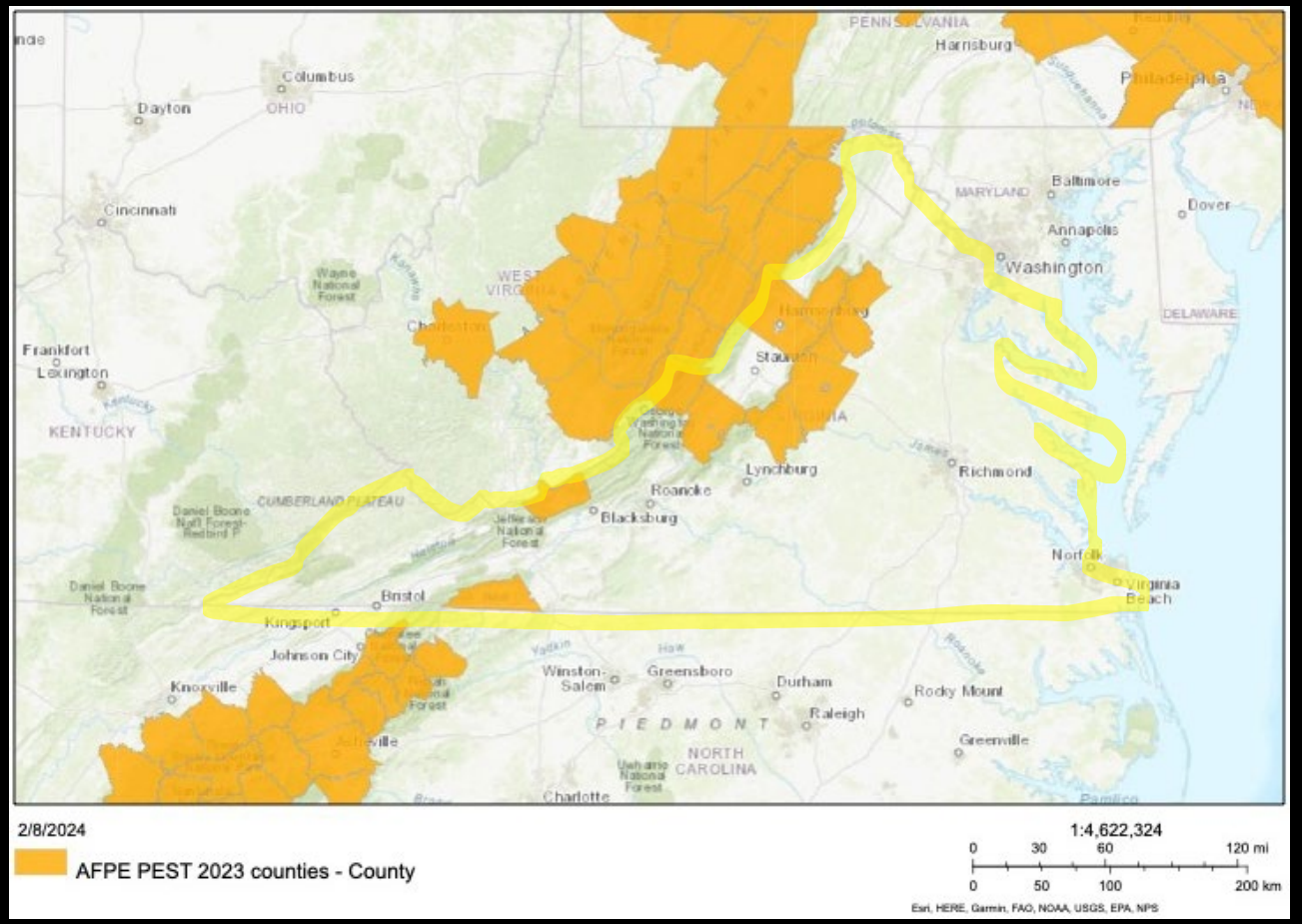


DISEASE COMPLEX

Scale insect: *Cryptococcus fagisuga*

Fungus: *Neonectria ditissima* & *faginata*


Lake Superior
Quebec
Montreal
Ottawa
NEW BRUNSWICK
NOVA SCOTIA
Halifax
WISCONSIN
Lake Michigan
Lake Huron
Toronto
Lake Ontario
Grand Rapids
Detroit
Lake Erie
Boston
Chicago
MICHIGAN
Cleveland
Providence
IOWA
ILLINOIS
OHIO
Columbus
New York
Indianapolis
Philadelphia
Kansas City
INDIANA
Cincinnati
St Louis
Washington
MISSOURI
Louisville
KENTUCKY
Richmond
Norfolk
Nashville
Knoxville
Greensboro
Raleigh
Memphis
TENNESSEE
Charlotte
NORTH CAROLINA
ARKANSAS
Greenville
SOUTH CAROLINA
Atlanta


PENNSYLVANIA
Harrisburg
Columbus
Dayton
OHIO
Cincinnati
MARYLAND
Baltimore
Dover
Annapolis
Washington
DELAWARE
Wayne National Forest
WEST VIRGINIA
Charleston
Harrisonburg
Staunton
Frankfort
Lexington
KENTUCKY
Lynchburg
Richmond
Roanoke
Blacksburg
CUMBERLAND PLATEAU
Daniel Boone National Forest
Jefferson National Forest
Norfolk
Virginia Beach
Bristol
Kingsport
Johnson City
Knoxville
Winston-Salem
Greensboro
Durham
Raleigh
Rocky Mount
PIEDMONT
Greenville
NORTH CAROLINA
Uwharrie National Forest
Charlotte
2/8/2024
AFPE PEST 2023 counties - County
1:4,622,324
0 30 60 120 mi
0 50 100 200 km
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

STAGES OF INFESTATION

Advance Front

Killing Front

Aftermath

LAUREL WILT

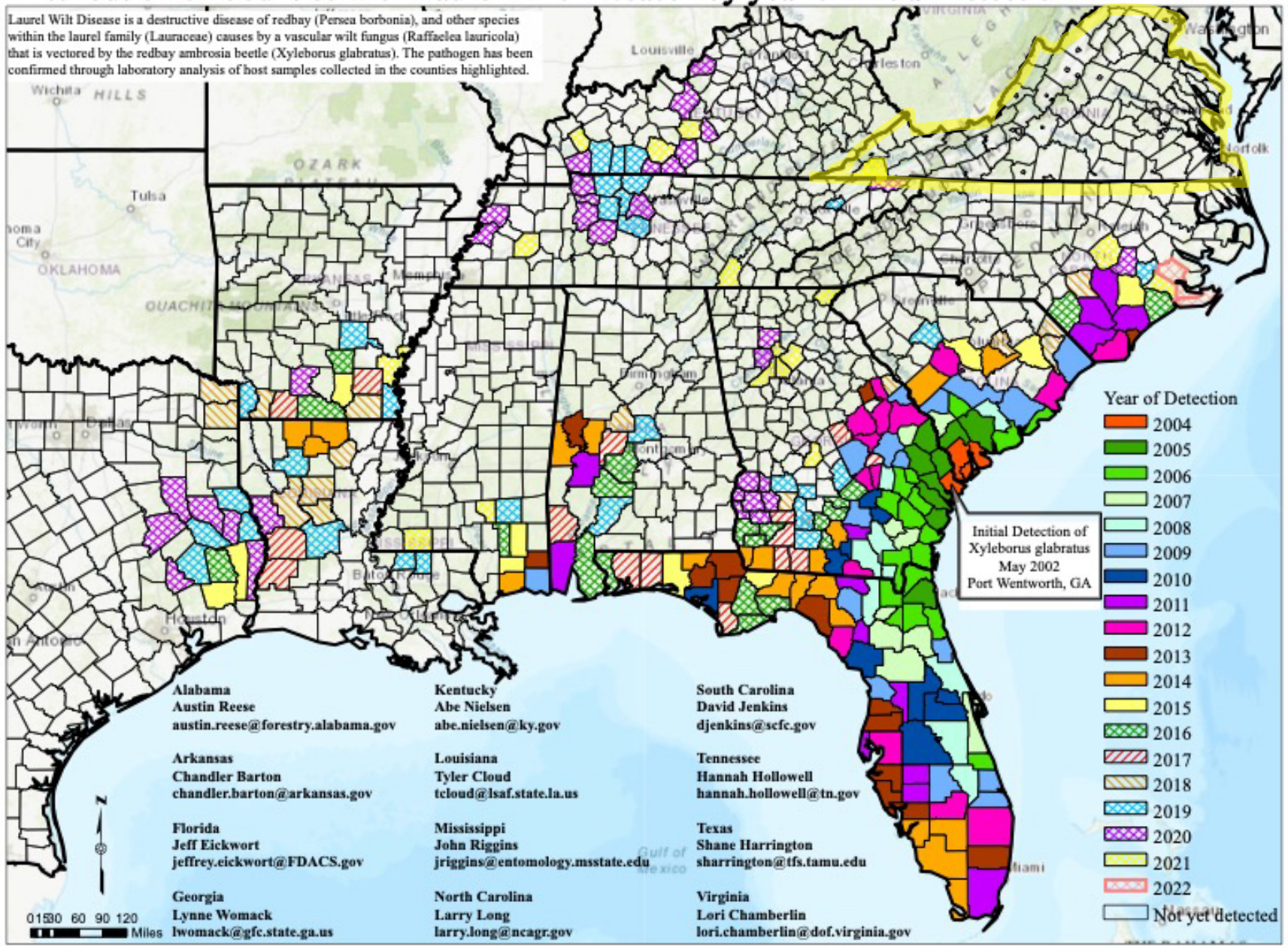
DISEASE COMPLEX

Redbay ambrosia beetle

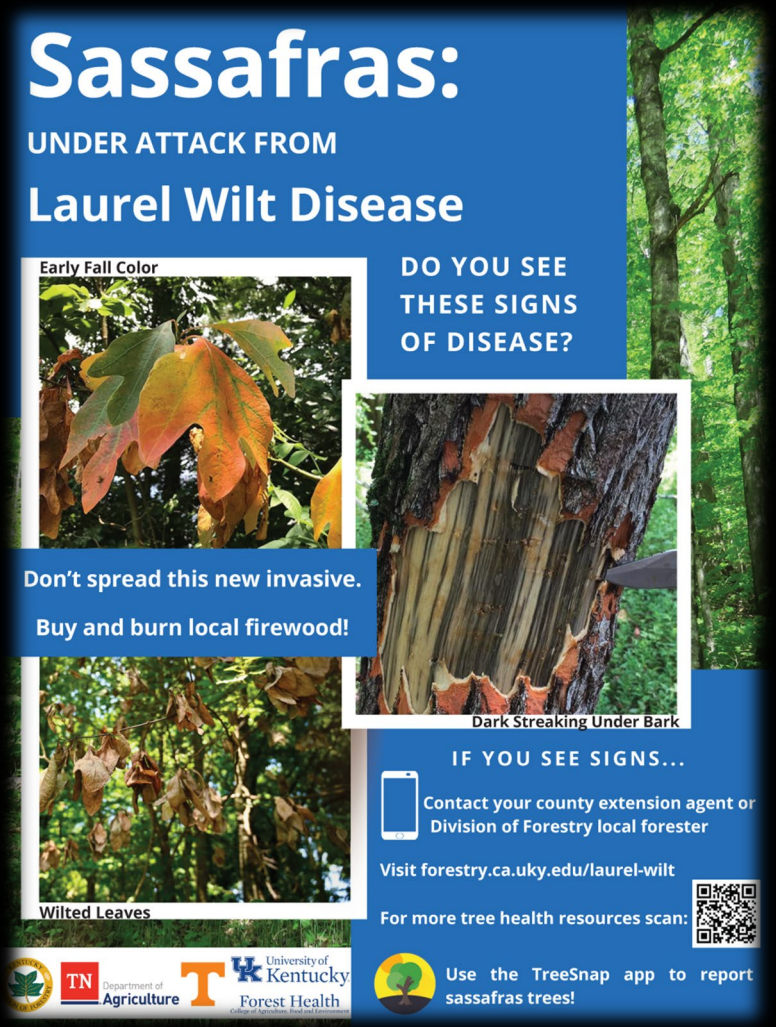
Fungus: *Harringtonia lauricola*

Distribution of Counties with Laurel Wilt Disease* by year of Initial Detection

February 18, 2022



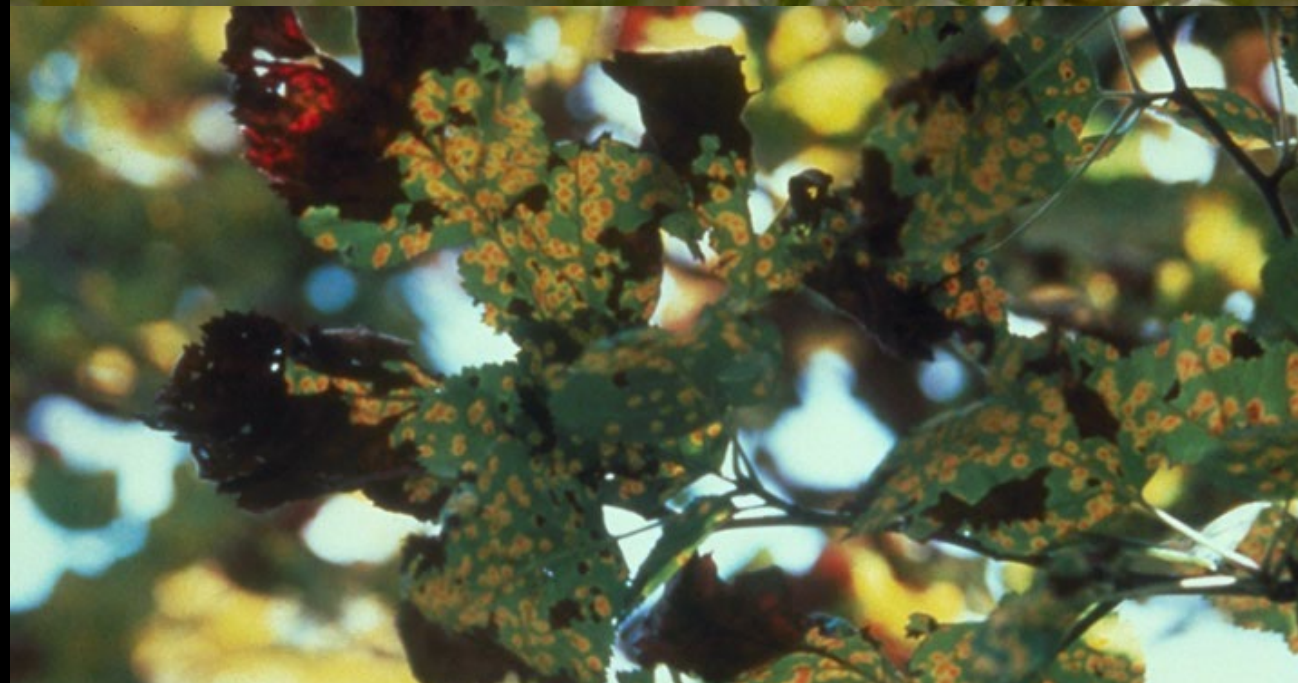
MANAGEMENT



Early Detection – Dr. Caterina Villari, University of Georgia

Effects of prescribed fire on redbay colonization/laurel wilt – Shane Allan

CEDAR-APPLE RUST



Teliospores

Basidiospores

Wind

Young leaves, fruit, stems

Spermatia

Aecia

Wind

Needle Stomata

Eastern red-cedar

Malus spp.

M A N A G E M E N T

Eastern Red Cedar
Prune galls

Apple species
Fungicides, removal of cedars within 1 mile

QUESTIONS?

Dr. Carrie Fearer

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DONTFEARERTHEFOREST